STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING
SUITE 700, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
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JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

TO: Will Reid
Assistant Chief Engineer of Operations

FROM: Brad Freeze, Director of Traffic Operations

SUBJECT: **Proprietary Item Request and Justification**
Metropolitan Government of Nashville and Davidson County

Traffic Signal Detection Equipment: The Metropolitan Government of Nashville and Davidson County is requesting that Wavetronix radar traffic signal detection equipment be used in all signalization projects within the City including Davidson County over the next three years where Federal and/or State funding are used. This request includes both SmartSensor Matrix for stop bar detection and SmartSensor Advance for advanced approach detection and is founded on the necessity to provide highly reliable and efficient detection for the synchronization of the City's traffic signal systems. The following are justification items for this request:

As the Nashville population and traffic volumes continue to grow, the Metropolitan Government of Nashville and Davidson County must find minimally evasive solutions to optimizing existing traffic signal systems. Because of the reoccurring maintenance cost of replacing loops with a high failure rate and the loss of efficiency in a coordinated traffic signal system when a loop has failed, the City has standardized plans to install Wavetronix radar detection on new signals and convert the existing signals as the current loop detection fails and budget allows. Failed detection results in longer delays, increased stop time, and increased fuel consumption and emissions for all users.

The Metropolitan Government of Nashville and Davidson County tested a number of available traffic signal detection devices, including various video and radar detection units. As a result, the City has seen excellent performance with the Wavetronix system with little to no maintenance required after installation. In regards to radar traffic signal detection equipment, the City currently has installed Wavetronix detection operates at 4 out of 5 intersections. Additionally, the City has another 54 signalized intersections under design and/or construction that will be installing Wavetronix detection which includes a transit signal priority project in partnership with the Nashville Metropolitan Transit Authority. By 2018, the City expects to have approximately 163 Wavetronix radar detection units operating at 58 intersections. Wavetronix radar traffic signal detection equipment reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to insure maximum capacity of the synchronized system.

The Metropolitan Government of Nashville and Davidson County staff has been extensively trained to install, operate, and maintain the Wavetronix radar traffic signal detection system. This allows technicians to quickly diagnose problems with field units which reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to insure maximum capacity of the synchronized system. By utilizing Wavetronix radar traffic signal detection equipment as the standard for the City, there will be a cost savings in stocking replacement equipment which will result in faster and less costly repair.

I, Brad Freeze, Director of the Traffic Operations Division of the Tennessee Department of Transportation, do hereby certify that in accordance with the requirements of 23 CFR 635.411(a) (2) that the patented or proprietary items listed above are essential for the synchronization of existing facilities.

Assistant Chief Engineer of Operations

6.20.17
Date

MEGAN BARRY
MAYOR

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DEPARTMENT OF PUBLIC WORKS
750 SOUTH FIFTH STREET
NASHVILLE, TENNESSEE 37206

June 12, 2017

Stephen K. Bryan, P.E., PTOE
Tennessee Department of Transportation
Traffic Operations Division
James K. Polk Bldg., 12th Floor
505 Deaderick St., Nashville, TN 37243

Request for Proprietary Traffic Signal Products Certification:
Traffic Signal Detection Equipment

Mr. Bryan:

The Public Works Engineering Department of the Metropolitan Government of Nashville and Davidson County would like to request a proprietary product certification for the Wavetronix radar traffic signal detection equipment to be used in all signalization projects within the City over the next three years. The requested Wavetronix radar detection equipment includes both SmartSensor Matrix for stop bar detection and SmartSensor Advance for advanced approach detection. This request is founded on the necessity to provide highly reliable and efficient detection for the synchronization of Nashville's traffic signal system. This detection is needed as part of our traffic signal management program and transit signal priority project in conjunction with the Nashville Metropolitan Transit Authority. Additionally, many of Nashville's traffic signals are located within the state route system and use of the proprietary item would allow the City to maintain and operate the coordinated traffic signal systems in a more efficient and effective manner.

As the Nashville population and traffic volumes continue to grow, the City must find minimally evasive solutions to optimizing the existing traffic signal system. Because of the reoccurring maintenance cost of replacing loops with a high failure rate and the loss of efficiency in a coordinated traffic signal system when a loop has failed, the City has standardized plans to install Wavetronix radar detection on new signals and convert the existing signals as the current loop detection fails and budget allows. Failed detection results in longer delays, increased stop time, and increased fuel consumption and emissions for all users. Nashville has tested a number of available detection devices, including various video and radar detection units. The City has seen excellent

performance with the Wavetronix system with little to no maintenance required and a high level of support from the local Wavetronix representatives for troubleshooting. The City of Nashville staff has also been extensively trained to install, operate, and maintain the Wavetronix detection system. Wavetronix is a non-intrusive detection device which is a cost savings over time as this system will not have to be replaced when a roadway is milled and resurfaced as compared to loop installations. Wavetronix detection increases the reliability of vehicle, bicycle, and pedestrian detection and directly relates to the overall operation of signalized intersections.

Currently Wavetronix detection operates at 4 of 5 intersections with radar detection. Additionally, Nashville has another 54 signalized intersections under design or construction that will be installing Wavetronix detection. By 2018 we expect to have approximately 163 Wavetronix units operating at 58 intersections. Wavetronix equipment reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to insure maximum capacity of the synchronized system. Additionally, the 730-N specification will be revised to reflect the change to the Wavetronix radar detection units. By keeping with proprietary products the City of Nashville can better maintain Nashville's Traffic Management System and reduce system down time.

Thank you for consideration of this request.

Respectfully,
The Department of Public Works

Kristen D. Rice

Kristen D. Rice, PE
Metropolitan Government of Nashville
Department of Public Works Engineering
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Nashville, TN 37206
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